CLAIMS

What is claimed is:

1. A semiconductor device, comprising:

a semiconductor substrate having a surface formed with a first recessed region;

a first dielectric material deposited in the first recessed region and formed with a second recessed region; and

a second dielectric material thermally grown over the first dielectric material to seal the second recessed region.

2. The semiconductor device of claim 1, further comprising an active device formed in an active region of the semiconductor substrate.

3. The semiconductor device of claim 1, further comprising an electrical component formed over the second recessed region.

4. The semiconductor device of claim 3, wherein the electrical component comprises a passive device or bonding pad of the semiconductor device.

5. The semiconductor device of claim 1, wherein the semiconductor substrate is formed with silicon.

6. The semiconductor device of claim 1, wherein the first dielectric material includes deposited silicon dioxide.

7. The semiconductor device of claim 1, wherein the second recessed region is formed having a third dielectric material deposited on the walls.

8. The semiconductor device of claim 1, wherein the second dielectric material is formed with thermally grown silicon dioxide.

9. The semiconductor device of claim 1, wherein the first dielectric material includes a cap layer.

10. The semiconductor device of claim 9, wherein the cap layer includes a chemical vapor deposition film.

11. The semiconductor device of claim 1, where the second recessed region extends into the semiconductor substrate to the depth of at least five micrometers.

12. A method of making a semiconductor device, comprising the steps of:

masking a material to form dielectric pillars in a recessed region; and

oxidizing a cap layer to form a seal over regions between the dielectric pillars.

13. The method of claim 12 wherein the material is formed with deposited silicon dioxide.

14. The method of claim 12, wherein the step of masking further comprises the steps of:

depositing the cap layer over the semiconductor material;

removing portions of the cap layer to expose the underlying semiconductor material; and

etching the exposed underlying semiconductor material to form the dielectric pillars.

15. The method of claim 14, wherein the cap layer is formed with chemical vapor deposition film.

16. The method of claim 12, wherein the step of oxidizing includes the step of thermally growing silicon dioxide.

17. The method of claim 12 further comprising the step of forming an electrical component over regions between the dielectric pillars after the step of oxidizing the cap layer.

18. The method of claim 17 wherein the electrical component comprises a passive device or bonding pad of the semiconductor device.

19. The method of claim 12, wherein the step of oxidizing is performed after the step of depositing a dielectric onto the walls of the pillars

20. The method of claim 19 wherein the dielectric includes chemical vapor deposition film.

21. The method of claim 12, further comprising the step of forming an active device in an active region of the semiconductor device after the step of oxidizing the cap layer.

22. A method of fabricating an integrated circuit, comprising the steps of:

etching a first dielectric material deposited within a recessed region to form dielectric pillars;

growing a second dielectric material to form a seal over the dielectric pillars; and

forming a passive component over the second dielectric material.

23. The method of claim 22, further comprising the step of depositing a semiconductor material over the dielectric pillars prior to the step of etching the first dielectric material.

24. The method of claim 23, wherein the step of growing a second dielectric material includes the step of oxidizing the semiconductor material.

25. The method of claim 22, wherein the passive component includes a bonding pad.